Math 212
Quiz 03

F 26 Aug 2016

Your name: _____

Exercise 1

(3 pt) Consider the point $P = (2\sqrt{2}, \frac{\pi}{3}, \frac{\pi}{4})$, given in spherical coordinates (ρ, θ, φ), in $\mathbf{R}^3$.

(a) (1.5 pt) Write P in rectangular coordinates (x, y, z). *Hint:* Think geometrically.

(b) (1.5 pt) Write P in cylindrical coordinates (r, θ, z).

Exercise 2

(2 pt) Let

$$\mathbf{u} = (3, 1, 8), \qquad\qquad \mathbf{v} = (1, -1, 2)$$

be vectors in $\mathbf{R}^3$. *Hint:* A useful mantra: "Vector arithmetic is done componentwise".

(a) (1 pt) Compute $\mathbf{u} + \mathbf{v}$.

(b) (1 pt) Compute $\mathbf{u} - 2\mathbf{v}$.